CLAIMS

The invention claimed is:

1.   In a networking environment, a method for identifying network elements and related information, comprising:

providing a plurality of discovery plans, each having computer-useable instructions receivable by a network-element-discovery component to extract information from one or more network elements;

selecting a discovery plan from the plurality to interface with the network element; and

using the selected discovery plan to extract descriptive data from the network element.

2.   The method of claim 1, wherein the network-element-discovery component includes a generic network-element interface (GeNEI).

3.   The method of claim 2, wherein each of the plurality of discovery plans includes instructions that need to be followed to perform discovery on at least one of the network elements.

4.   The method of claim 3, wherein selecting a discovery plan comprises:

querying the network element; and

receiving from the network element information sufficient to determine from the plurality of discovery plans the selected discovery plan that will enable the GeNEI to interrogate the network element.

5.   The method of claim 4, wherein the network element descriptive data includes data related to the physical characteristics of the network element.

6.   The method of claim 5, wherein data related to the physical characteristics of the network element includes information related to one or more of: network cards, terminals, common controls, shelves, communications cards, circuits, ports, connections, virtual tributaries, shelves, communications capabilities, bandwidth characteristics, and identifying information.

7.   One or more computer-readable media having computer-useable instructions embodied thereon for performing the method recited in claim 1.

8.   A system for automatically populating a database with network-element information related to elements of a communications network, comprising:

one or more network-element-discovery components;

a plurality of discovery plans, each having computer-useable instructions receivable by the network-element-discovery component to extract information from one or more network elements; and

an element-querying component to determine which of the plurality of discovery plans is configured to interface with the network element, so that descriptive data can be extracted from the network element.

9.   The system of claim 8, further comprising a generic resolver for determining a communications protocol to be used to communicate with one or more of the network elements, whereby an applicable protocol-specific, device-agnostic interface can be selected to interrogate one or more of the network elements.

10.   The system of claim 8, wherein each of the one or more network-element-discovery components is a protocol-specific, device-agnostic interface that uses one of the plurality of discovery plans to perform discovery functions on a communications network.

11.   The system of claim 10, wherein each of the plurality of discovery plans includes computer-useable instructions embodied on computer-readable media that directs the network-element-discovery component how to extract information from one or more network elements.

12.   The system of claim 11, wherein information to be extracted from the one or more network elements includes identifying indicia and technical-specification data, where technical-specification data includes one or more of software versions, network addresses, identifiers, a listing of installed components, a listing of the location of installed components, a listing of the availability of services provisioned.

13.   One or more computer-readable media having computer-useable instructions embodied thereon for gathering and storing information about devices on a communications network, the method comprising:

        identifying a protocol-specific interface module to communicate with a network device;

        establishing a logical connection with the network device;

        determining from the device a configuration file for interrogating the device; and

        interrogating the device to receive device-attribute data related to the device, whereby the device-attribute data can be stored.

14.   The media of claim 13, wherein determining a protocol-specific interface module to communicate with a network device includes at least one of the following methods:

issuing a command to the network device and receiving back an indication of a protocol to be used;

issuing a command to the network device and receiving back a response in the protocol to be used; and/or

successively issuing a plurality of commands in various protocols until a response is received from the network device indicating which of the plurality of protocols should be used.

15.   The media of claim 14, wherein various protocols include a communications protocol for which a protocol-specific interface can be implemented.

16.   The media of claim 15, wherein a communications protocol for which a protocol-specific interface can be implemented include one or more selections from the following: SNMP, TL1, Telnet, a proprietary command-line-interface, SSH, CORBA, and Q3.

17.   The media of claim 15, wherein determining a configuration file includes:

receiving identifying indicia from the device; and

identifying a configuration file consistent with the identifying indicia.

18.   The media of claim 17, wherein the configuration file directs the protocol-specific interface module how to extract information from one or more network elements.

19. The media of claim 18, wherein using the configuration file to interrogate the device-attribute data includes information related to one or more of: network cards, terminals, common controls, communications cards, circuits, ports, connections, virtual tributaries, shelves, communications capabilities, bandwidth characteristics, and identifying information.

20. A system for discovering and analyzing network elements of a communications network, the system comprising:

a set of one of more discovery plans, wherein the discovery plans include information describing how to query one or more of the network elements;

a generic resolver that identifies a specific discovery plan from the set of one or more discovery plans that should be used to query a specific network element; and

a generic network-element-interface that receives the identified discovery plan to retrieve device-data from a specific network element.

21. A method of identifying capabilities of a network, comprising:

providing a set of discovery plans,

identifying an appropriate network-element-interface to use for performing discovery on one or more network devices;

identifying an appropriate discovery plan for the identified network-element-interface to use for performing discovery on said one or more network devices;

retrieving data related to said one or more network devices; and

automatically populating a database with the retrieved data.